

VEHICLE LIGHT BAR (L.E.D. TYPE)

NOTE: THIS SPECIFICATION AND ANY ACCOMPANYING SPECIFICATION OR BID CAN BE APPEALED.

YOUR APPEAL MUST BE SUBMITTED IN WRITING TO THE CITY PURCHASING DIRECTOR FOR ALL BIDS NO LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING.

YOUR APPEAL MUST NOT ONLY IDENTIFY THE PROVISION, TERM OR CONDITION THAT IS CAUSING PROBLEMS, BUT ALSO YOUR PROPOSED ALTERNATE POSITION, TERM OR CONDITION AND BE SUPPORTED BY TECHNICAL DATA, TEST RESULTS AND OTHER INFORMATION.

CONTACT THE APPROPRIATE PURCHASING AGENT OR THE PROCUREMENT SPECIALIST FOR APPEAL FILING INSTRUCTIONS.

APPEALS RECEIVED LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING OR WITHOUT SUFFICIENT DETAILS **WILL NOT BE CONSIDERED.**

NOTICE

AN APPEAL FEE (CHECK OR MONEY ORDER) THAT IS 1% OF THE ESTIMATED DOLLAR AMOUNT OF THIS CONTRACT IS REQUIRED WITH A BID SPECIFICATION APPEAL. THIS FEE IS A PREREQUISITE FOR PURSUING THE APPEAL AND MUST ACCOMPANY THE APPEAL. THE APPEAL FEE WILL BE RETURNED IF THE APPEAL IS UPHOLD.

CAUTION: A BID THAT DOES NOT FULLY COMPLY WITH ALL OF THE PROVISIONS, TERMS, AND CONDITIONS OF THIS OR ANY ACCOMPANYING SPECIFICATION AND BID, **MAY BE DETERMINED AS A COUNTER OFFER AND MAY RESULT IN THE BID BEING REJECTED FOR NON-RESPONSIVENESS.**

I. GENERAL:

- A. It is the intent of this specification to describe the minimum requirements for a Vehicle Light Bar (L.E.D. Type) to be purchased by the City of Milwaukee for the Police Department.

All items, details of construction, services or features not specifically mentioned which are regularly furnished in order to provide a Vehicle Light Bar (L.E.D. Type) shall be furnished at the bid price and shall conform in strength, quality and workmanship to that usually provided by the practice indicated in this specification.

The warning light devise shall be a single lever light bar. The light bar shall utilize a design having all the warning light signals internally positioned within the light bar. Light bars having any warning light signals located externally are not acceptable. Must also allow the option of pre-emption power supply and strobe emitter head to be mounted within the light bar.

- B. The primary warning signal shall be comprised of L.E.D. light assemblies, only the alley and take down lights can be halogen.

II. AWARD AUTHORITY:

- A. The DOA, Business Operations Division, Procurement Services Section will be the sole judge of the quality and suitability of the equipment, materials and/or services offered in its determination of the successful bidder for bids that do not exceed \$ 30,000.00.
- B. The City Purchasing Director of the DOA-Procurement Services Section will be the sole judge of the quality and suitability of the equipment, materials and/or services offered in its determination of the successful bidder for bids that exceed \$30,000.00.

III. WARRANTY: The seller and/or manufacturer warrants that goods sold and services rendered hereunder will be of merchantable quality, will conform to applicable specifications, drawings, designs, samples or descriptions, will be free from defects in material and workmanship and will be fit for the particular purpose intended by the buyer.

- A. The light bar shall be warranted for a minimum period of one year from date of delivery and the power supplies, and LED modules shall be warranted for a minimum period of five (5) years from date of delivery.
- B. Under this provision, the seller and/or manufacturer agrees to repair or replace, during the warranty period, any part, feature or product found to be defective or unsuitable for the service intended, at no cost to the City.
- C. Bidder should provide a complete warranty statement confirming the above with the bid. **IF NOT PROVIDED WITH THE BID BUT REQUESTED BY THE DOA, BUSINESS OPERATIONS DIVISION, PROCUREMENT SERVICES SECTION, THE WARRANTY STATEMENT MUST BE SUBMITTED WITHIN THREE (3) WORKING DAYS OF RECEIVING A REQUEST OR THE BID WILL BE REJECTED.**

IV. PROVEN EXPERIENCE: Each bidder should provide information, which will certify that they have the experience to meet the requirements of this specification, with their bid. This information shall include the name of three (3) customers, that are currently under contract with the bidder for providing Light Bars and service, similar to those described herein and the name and telephone number of a person to contact.

If not received with the bid, but requested by the DOA Business Operations Division, Procurement Services Section, the information must be submitted within three (3) working days of receiving a request or the bid will be rejected.

V. TECHNICAL REQUIREMENTS:

- A. All materials provided and services rendered shall be in accordance with the manufacturer's instructions and using generally accepted industry practices.
- B. The light bar shall be a Code 3 2100 Series, including the options available within this document, as manufactured by Code 3, Inc., reference model number 2147A15 with LED arrow stick and controller. – no substitutes.

C. BASIC STRUCTURAL DESIGN OF LIGHT BAR:

1. The light bar shall be an L.E.D. Type that houses all of the electronics, L.E.D. lights and power supplies within the light bar. There shall be no mechanical drives, motors, chains, belts electromechanical relays or plastic gears that will impede the basic warning functions under any environmental condition.
2. The light bar shall have a pleasing shape designed to have a minimal effect on the performance of the vehicle to which it is attached. The light bar shall be no larger than 47.125" in length, 2.1" in height, and 12.75" wide and weigh less than 40 pounds. The light bar shall include a mounting kit that permits either permanent or hook-on mounting on automobiles of all sizes.
3. The main supporting structure of the light bar must be of sufficient strength and design to prevent the light bar from sagging under its own weight. The design of the light bar shall be such that when struck by an overhead garage door, the light bar can be easily repaired and returned to service.
4. The power and control cable shall exit the light bar on the passenger side of the vehicle.
5. All internal components such as lamps, power supplies and matrix board shall be modular in design with quick disconnect connectors for ease of replacement without removing the light bar from the roof of the vehicle. All components are to be fastened to the primary structure of the light bar without the use of secondary brackets for ease of replacement.
6. All metal parts shall either be fabricated out of corrosion resistant metal (CRES or MONEL) or treated to prevent rust and corrosion.

D. POWER SUPPLIES:

1. Each power supply shall be independent and individually fused within the light bar to allow for uninterrupted operation of the remaining power supply in the event that one should fail.
2. The light bar shall contain a built-in program or circuitry for controlling all functions patterns of the light bar, both L.E.D. and halogen. The light bar shall function as follows for the corresponding positions of the controller:

Position 1: All rear L.E.D. lights flashing. (Traffic Stop Mode)

Position 2: All L.E.D. lights flashing. (Maximum Warning Mode)

Position 3: All front, corner and side L.E.D. flashing. (Pursuit Mode)
3. The light bar shall be capable of continuous operation from -55 deg C to +60 deg C ambient temperatures. The light bar must be capable of instant full intensity operation after a minimum of 8 hours idle time exposed to -55 deg C temperatures.

4. The light bar shall have the capability for flashing in a traffic arrow mode to the rear of the light bar.

E. MOUNTING HARDWARE:

Each light bar shall be equipped with the standard hook-on mounting bracket suitable for use with 2008-2009 Ford Crown Victoria vehicles.

F. EXTERNAL POWER CABLE:

1. Each light bar shall be supplied with a minimum of 15 feet of power cable.
2. The power cable shall contain sufficient conductors to operate the light bar in all modes and be compatible with connections to a UNITROL Model TM4 Touchmaster Siren.

G. LENS CONSTRUCTION:

1. Lens material must be listed in the AAMVA publication titled "Listing of Acceptable Plastics for Optical Lenses and Reflectors Used on Motor Vehicles".
2. Lens color must meet SAE color Specification J578d

H. L.E.D. CONSTRUCTION:

1. The single L.E.D. module shall consist of an array of 6 Lambertian Luxeon L.E.D.'s mounted to a Metal Core Light Engine board, which is attached to an aluminum-mounting bracket. A circuit board is also attached to the backside of the aluminum-mounting bracket. The aluminum-mounting bracket is designed to be screwed into the frame of the 2100 using two (2) screws. The L.E.D. module comes with an optimized aspheric lens and holder assembly with specially designed optics that focus and optimize the light output of each L.E.D. These optics also allow for more off angle lighting than has traditionally been delivered by other L.E.D. modules. These potics also allow the L.E.D. module to meet and exceed all applicable SAE and California Title 13 emergency lighting standards for color and light output.

The dimensions of the L.E.D. array are 1"H x 5 1/4" L.

The L.E.D. module is designed with electronics that allow for four different flash patterns. These flash patterns are: steady burn, quad flash, Cycle Flash, or fast single flash. The flash pattern can be changed by moving a jumper, which is located on the circuit board. The factory preset will be Cycle Flash.

The electronics are also designed in such a way so that all six (6) L.E.D.'s produce the same light output and color richness. This circuit design is known as a series array and it allows for the optimum amount of light output and color richness from each L.E.D.

The L.E.D. module is designed to operate at voltages ranging from 10-16 volts DC.

The six (6) L.E.D.'s in the L.E.D. module are the latest generation of L.E.D.'s known as Lamertian Luxeon L.E.D.'s Each L.E.D. is rated for 100,000 hours of operation.

2. The light bar shall have optically enhanced end L.E.D. modules designed to provide a wide-angle dispersion of light. The four (4) corner L.E.D. modules must provide 360 degree warning signal, per SAE and California Title XIII.
3. The light bar shall be six (6) Red L.E.D. modules on the driver's side, six (6) Blue L.E.D. modules on the passenger's side, and six rear facing Amber L.E.D. module located in the center section.
4. The upper and lower level lenses shall be an impact-resistant, polycarbonate plastic molding. The upper lens shall be Red on the driver side and Blue on the passenger side. The upper lens shall be easily removed by releasing four (4) lens clips on each section. Two (2) screws to permit replacement of the lamps or servicing of all internal components. The top of the upper level lens shall have a textured finish to reduce the amount of sunlight washout. Acrylic lenses are not acceptable.
5. To achieve a weather-tight seal, the upper and lower level lenses shall fit together providing a side loaded gasket sealing system, employing a fixed horizontally compressed gasket. This design allows the device seal to be independent of the lens fastener system. Light bars using a vertically compressed gasket sealing system, which are dependent of the lens fasteners to create a weather-tight seal are not acceptable.
6. One extra lot of lens fasteners are to be sent with each light bar.

I. HALOGEN STATIONARY TAKE-DOWN LIGHTS:

1. The light bar shall be equipped with two (2) 35 watt MR-11 halogen front facing stationary lights to be used as take-down lights.
2. The two (2) take-down lights shall be located in the center section, and aimed straight ahead, these two (2) lights shall be wired to a flasher allowing them to alternately flash, or steady burn. The takedown lights shall be adjustable to a 10 degree angle, towards the curbside or driver's side of the vehicle. Light bars which do not include the adjustable take-down lights are not acceptable.

J. ALLEY LIGHTS:

The light bar shall be capable of having two (2) alley light assemblies installed, located in the center of the end of the light bar. These assemblies shall utilize a 35 watt halogen MR-11 lamp module with bi-pin base. In addition, the alley lights shall have at least a 10 degree horizontal adjustment to maximize their performance. Light bars with alley lights that are not horizontally adjustable are not acceptable. Each alley light shall utilize one (1) position.

K. LENS & FILTER COLORS:

The lower lenses shall be clear and color of light to be determined by the L.E.D. module.

L. ELECTRICAL SPECIFICATION:

The light bar shall be designed to operate on 12.8 volts D.C. on negative ground vehicles. The light bar shall include 15' of cable outside the bar exiting underneath the light bar. Each L.E.D. module shall draw approximately .6 amps average power.

VI. PARTS LIST AND MANUAL: A complete parts list and operating manual shall be furnished for each piece of equipment. Compliance with this provision is required prior to final payment.

VII. SERVICE FACILITIES: In order to insure that the City will be able to maintain and repair equipment purchased, vendor shall operate a service facility within the five (5) mile limits of Milwaukee county capable of performing most repairs associated with the equipment he represents. This facility shall be stocked with common replacement and high wear parts, as may be designated by the equipment manufacturer. The service facility shall provide delivery of in stock parts within 24 hours of order.

Bidder should provide the name and address of this facility along with the name and telephone number of a person to contact for service with the bid. If not received with the bid, but requested by the DOA, Business Operations Division, Procurement Services Section, the service facility information must be submitted within three (3) working days of receiving a request or the bid will be rejected.

VIII. TRAINING: The successful bidder shall give a two (2) hour block of instruction on the maintenance and repair of the light bar and related equipment. The bidder shall also supply a second block of instruction, if requested by the City. The bidder must understand that the Police Department works 24 hours a day and, therefore, has 3 shifts which need to be trained.

IX. DEMONSTRATION/SAMPLE: One complete sample light bar shall be provided within seven (7) working days of receiving a request from the Police Department.